PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A47C

A2

(11) International Publication Number: **WO 99/65364**

(43) International Publication Date: 23 December 1999 (23.12.99)

(21) International Application Number: PCT/KR99/00119

(22) International Filing Date: 13 March 1999 (13.03.99)

(30) Priority Data:
1998/23166 19 June 1998 (19.06.98) KR

(71)(72) Applicant and Inventor: KIM, Kiho [KR/KR]; 981, Na-juk-ri, Sanwei-myun, Mylyang-sity, Kyungnam 627-810 (KR).

(74) Agent: LEE, Joongseop; 1Ga-4, Bumin-dong, Seo-ku, Pusan 602-071 (KR).

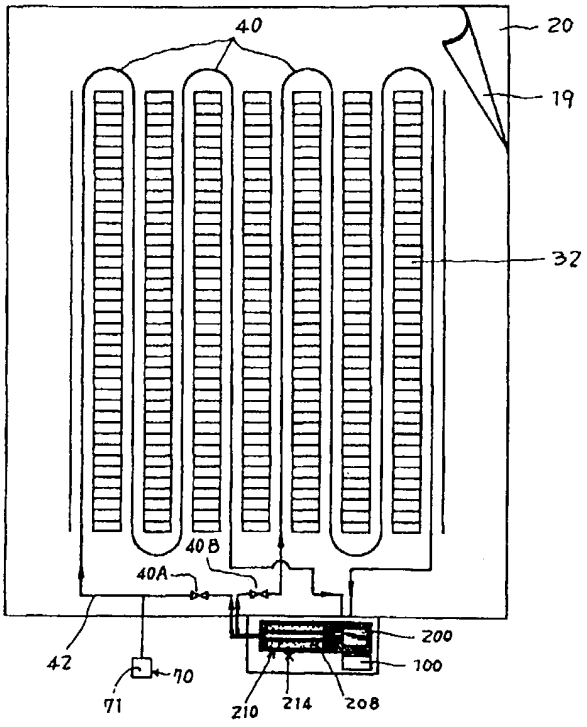
(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IS, JP, KP, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: HOT WATER MAT USING YELLOW SOIL

(57) Abstract

A hot water mat using a yellow soil, including: outer covers; tens of horizontal and vertical sealing junction lines; a pair of film papers; a yellow soil stick; hot water supplying tubes; a hot water supplying unit; a temperature adjusting unit; a hot water supplying tube protecting unit; and, a heat shield plate.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
AM	Armenia	**FI**	Finland	**LT**	Lithuania	**SK**	Slovakia
AT	Austria	**FR**	France	**LU**	Luxembourg	**SN**	Senegal
AU	Australia	**GA**	Gabon	**LV**	Latvia	**SZ**	Swaziland
AZ	Azerbaijan	**GB**	United Kingdom	**MC**	Monaco	**TD**	Chad
BA	Bosnia and Herzegovina	**GE**	Georgia	**MD**	Republic of Moldova	**TG**	Togo
BB	Barbados	**GH**	Ghana	**MG**	Madagascar	**TJ**	Tajikistan
BE	Belgium	**GN**	Guinea	**MK**	The former Yugoslav Republic of Macedonia	**TM**	Turkmenistan
BF	Burkina Faso	**GR**	Greece			**TR**	Turkey
BG	Bulgaria	**HU**	Hungary	**ML**	Mali	**TT**	Trinidad and Tobago
BJ	Benin	**IE**	Ireland	**MN**	Mongolia	**UA**	Ukraine
BR	Brazil	**IL**	Israel	**MR**	Mauritania	**UG**	Uganda
BY	Belarus	**IS**	Iceland	**MW**	Malawi	**US**	United States of America
CA	Canada	**IT**	Italy	**MX**	Mexico	**UZ**	Uzbekistan
CF	Central African Republic	**JP**	Japan	**NE**	Niger	**VN**	Viet Nam
CG	Congo	**KE**	Kenya	**NL**	Netherlands	**YU**	Yugoslavia
CH	Switzerland	**KG**	Kyrgyzstan	**NO**	Norway	**ZW**	Zimbabwe
CI	Côte d'Ivoire	**KP**	Democratic People's Republic of Korea	**NZ**	New Zealand		
CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

HOT WATER MAT USING YELLOW SOIL

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a mat for laying on the floor of a room or a bed in the interior of the room thus to go to sleep or else other purpose of the health promotion and, in particular, to a hot water mat using a yellow soil for easily assembling the yellow soil to the mat and adjusting the temperature of the mat by supplying the hot water to the mater, simultaneously.

2. Description of the Related Art

Generally, it has been well-known that the yellow soil has the effect to emit the infrared rays and the negative ion, discharge the waste material of the body human, and in harmony, circulate the energy of the body human.

Also, the people have known that the yellow soil has the antibiosis so that the inhabitation of the mildew, the bacterium, and the tick can be prevented as well as an oduor and all kinds of bad smell, such as the reek of the tabacco reeked in a house and the sweat, can be absorbed and dissolved, thereby providing agreeable sleeping environment.

As described previously, the prior arts utilizing the above excellent effect of the yellow soil (for example, the mat, mattress, and so on) mainly, circulate the electric current into the heat coil and heat the yellow soil. At this time, the prior arts have the construction of applying the emitted heat to the human body. Thus, the consumption of the electric power may be increased and the electric harm wave emitted in the heat coil can not be avoided.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a hot water mat using the yellow soil for improving the installing function to install the yellow soil at the mat as well as for adjusting the temperature of the mat with the supply of the hot water, simultaneously, in order to solve the above problem.

The above object can be achieved according to the present invention with a hot water mat using the yellow soil, comprising: outer covers; tens of horizontal and vertical sealing junction lines which are sealing with heat adhesion in the interior of the outer covers; a pair of film papers which have hot water supplying tube inserting hole of a given width, disclose one side of the horizontal sealing junction line, and have a plurality of yellow soil stick inserting holes; a yellow soil stick having the form of a closed tube with being fulled with dried yellow soil power with a given

size, which is inserted into each of yellow soil stick inserting holes of the film paper; hot water supplying tubes which are inserted into each of the hot water stick inserting holes of the film papers and are consequentially installed in the format of U in order to apply the heat to the yellow soil stick; a hot water supplying unit for supplying the hot water to the hot water supplying tubes; a temperature adjusting unit for adjusting the temperature of the hot water in the hot water supplying tubes; a hot water supplying tube protecting unit for protecting the hot water supplying tubes while expanding and contracting in accordance with temperature variation of the hot water in the hot water supplying tubes; and, a heat shield plate installed for disclosing the downward conveyance of the heat generated from the hot water supplying tubes with being positioned between the lower film paper and the lower outer cover.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of this invention, many of the attendant advantages thereof, will be readily apparent as the same becomes better understood by reference to the following detailed description when considered in conjunction with the accompanying drawings, in which like reference symbols indicate the same or similar elements components, wherein,

FIG. 1 is a view illustrating the arrangement state of a yellow soil stick and a hot water supplying tube according to an

embodiment of the present invention;

FIG. 2 is an enlarged perspective view illustrating main parts according to an embodiment of the present invention;

FIG. 3 is an enlarged perspective view illustrating the assembly state of the yellow soil stick and the hot water supplying tube as main parts of FIG. 1;

FIG. 4 is a plane view illustrating the sealing state of film papers which are applied to an embodiment of the present invention;

FIG. 5 is a view illustrating the installation state of a water supplying device which is applied to an embodiment of the present invention;

FIG. 6 is a view illustrating the installation state of a rubber stopper which is applied to an embodiment of the present invention;

FIG. 7 is a view illustrating an example of other variations of the yellow soil stick which is applied to in the present invention;

FIG. 8 is a view illustrating other arrangement state of the yellow soil stick and the hot water supplying tube according to an embodiment of the present invention; and

FIG. 9 is a view illustrating the variation state of a mat which is applied to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, a preferred embodiment of the present invention will be in detail explained with reference to the accompanying drawings.

As shown in FIGs. 1 to 4, reference numerals 10 and 11 respectively, correspond to upper and lower outer covers, wherein a pair of film papers 19 and 20 having the thermostablity are inserted into the interior of the out cover 10, while sealing each other.

Tens of horizontal and vertical sealing junction lines 21 and 22 are formed in the pair of the film papers 19 and 20 by sealing with heat adhesion in order that a hot water supplying tube inserting hole 23 can be formed to be open upwardly and downwardly with a given width for insertion of the hot water supplying tube 40.

Further, a plurality of the yellow soil stick inserting holes 24 made with cutting one side of the horizontal sealing junction line 21 is shaped in the film paper 20. Namely, the yellow soil stick inserting holes 24 are surrounded by two horizontal sealing junction lines 21 positioned upwardly and downwardly and one vertical sealing junction line 22 and have openings in which one side is cut and open.

And, a yellow soil stick 32 having the form of a stick and a

closed block outer cover 30 filled with dried yellow soil powers of 90% and the air of 10% is inserted into the yellow soil stick inserting hole 24 of the film paper 20. (Refer to FIGs. 2 and 3.)

Here, the reason why the yellow soil stick 32 is filled the air of 10% is just to maximize the effect to keep the heat retained in the yellow soil power of the yellow soil stick 32 in the case of applying the heat to the yellow soil stick 32.

In an embodiment of the present invention, the length of the yellow soil stick 32 is 70mm, the width of the hot water supplying tube inserting hole 23 is 20mm, the width interval where first and second hot water supplying tubes 40 are arranged is within 10mm, and there are connected each of open and closed valves 40A and 40B for using for one person or two persons in the openings of the first and second hot water supplying tubes 40. That is, in the event of using only any one of the open and closed valves (40A or 40B), the used open and closed valve is used for one person.

Accordingly, when one person lays on the mat with setting the general adult on the basis of this mat, 7 and 8 lines of the hot water supplying tube 40s are passed in downward direction of the human body.

So as to emit the heat into the yellow soil stick 32 and the upper outer cover 10, the hot water supplying tubes 40 of the

diameter of 4mm and inserted and arranged in the format of U are installed in each of the hot water supplying tube inserting hole 23 of the pair of the film papers 19 and 20.

In the case of using the mat according to the present invention as the use standard for one person, the amount of the water supplied to the hot water supplying tubes 40 is slightly 150ml to 200ml then to minimize the power consumption.

Also, the hot water supplying means for supplying the hot water to the hot water supplying tubes 40 is as follows. That is to say, the openings of the hot water supplying tubes 40 are interfaced to the outlet of the heat tube 204 of the copper, the outlets of the hot water supplying tubes 40 are connected to the inlet of the hot water pump 202 for forcibly circulating the hot water in the hot water supplying tubes 40, wherein the hot water pump 202 is directly connected to the output of the circulation motor 200, the heat line 206 is arranged to heat the hot water carried into the heat tube 204 around the circumference of the heat tube 204, the heat generated in the heat line 206 fulled with heat shield 208 just as the plaster within the heat tube 204 and the heat tube case 210 is concentrated on the heat tube 204, the circulation motor 200 is installed in the interior of the motor housing 212, the motor housing 212 is connected with the heat tube case 210 in the unitary format, and the temperature sensor 214 is equipped in the heat shield 208 to measure the emitting

temperature of the heat line 206.

Meanwhile, the motor housing 212 and the heat tube case 210 are equipped with one control box 220 and the temperature controlling device 100 for controlling the temperature of the heat line 206 and adjusting the temperature of the hot water supplying tubes 40 is installed in the interior of the control box 220.

Therefore, the hot water mat using the yellow soil according to the present invention is compactly installed with boiler devices for heating the hot water supplied into the hot water supplying tube 40s, that is, the heat tube 204, the hot water pump 202, and the circulation motor 200.

At this time, the circulation motor 200 is preferably arranged at the position where the foot of the person is placed on the mat upon using the mat according to the present invention for sleeping, so that minute noise generated in the circulation motor 200 can not disturb the sleeping.

The temperature controlling device 100 which controls the amount of the electric current flown at the heat line 206 which and adjusts the temperature of the hot water circulating the interior of the hot water supplying tubes 40 will be not described hereinafter because the present invention uses a general temperature adjusting device as the means for adjusting the

temperature of the hot water.

Meantime, as the means for protecting the hot water supplying tubes 40 in correspondence with the temperature variations of the hot water circulating the interior of the hot water supplying tubes 40, a pak 70 for protecting the hot water supplying tubes 40 (hereinafter, referred to as "pak") of a vinyl or a rubber is connected to the hot water supplying tubes 40, having a buffer room 71 connected through a connection horse 42. (Refer to FIGs. 1 and 6.)

Namely, the buffer room 71 of the pak 70 contracts upon the temperature of the hot water in the interior of the hot water supplying tubes 40 is lowered and, on the contrary, expands upon the temperature of the hot water therein is raised.

There is a rubber stopper 72 equipped in the pak 70 to inserting a piston 1 for hot water supplement for supplementing the hot water in the interior of the hot water supplying tubes 40.

A heat shield plate 60 for enhancing the heat efficiency by closing the conveyance of the heat generated in the hot water supplying tubes 40 to the bottom surface, is placed between the lower film paper 20 and the lower outer cover 11.(As shown in FIG. 3.)

Hereinafter, the effect and the operation of the present invention constructed as stated above will be expressed in detail.

Primarily, when the electric current is supplied from a temperature controlling device 100 connected with the power supply to the heat line 206, the heat line 206 is emitted. Then, the heat emitted in the heat line 206 is conveyed into the heat tube 204 enclosed with the heat line 206, thereby heating the water in the heat tube 204 in a short time.

Simultaneously, once the circulation motor 200 is driven, the hot water pump 202 initiates the hot water pumping. As a result, the hot water heated in the heat tube 204 is circulated through the hot water supplying tubes 40.

As stated hereinbefore, the heat emitted from the hot water while circulating the interior of the hot water supplying tubes 40 is transmitted into a plurality of the yellow soil sticks 32, the above yellow soil stick being arranged around the upper outer cover 10, the heat shield plate 60, and the first and second hot water supplying tubes 40. (This corresponds to the case that the open and closed valves 40A and 40B are all open.)

Then, the heat shield plate 60 discloses at the medium the heat transmitted to the lower outer cover 11 and concentrates the heat on the upper outer cover 10 and the yellow soil stick 32.

As a result, the heat is emitted from the upper outer cover 10 and the heat conveyed to the yellow soil stick 32 heats the yellow soil stick 32, at the same time, thereby activating the emission of the infrared rays.

Resultedly. when the person lays on the upper outer cover 10, the present invention has the effect that the waste material of the human body is discharged due to the action of the infrared rays and the negative ion, thereby in harmony, circulating the energy of the body human. As well, since the electromagnetic wave harm to the human body has no effect to the human body, the present invention can be used with no problem for usage.

In the meantime, in the step of circulating the hot water as stated previously, when the temperature of the hot water in the interior of the hot water supplying tube 40s is raised, the buffer room 71 positioned in the interior of the pak 70 connected with the hot water supplying tube 40s is expanded by the reason of expansion of the hot water. On the contrary, when the temperature of the hot water therein is lowered, the buffer room 71 of the pak 70 is contracted to thereby protect the hot water supplying tubes 40.

Meanwhile, the present invention can be constructed with connecting serially a plurality of bundles of the yellow soil sticks

to enhance the assembly of the yellow soil stick 32 inserted into the yellow soil stick inserting hole 24 of the film paper 20, as shown in FIG. 7.

Further, as depicted in FIG. 9, the present invention can be constructed with sticking a slider zipper 8 at the other side except for one side then to form a fomentation room in the interior by folding the outer cover 10 into 2.

Furthermore, as illustrated in FIG. 8, the present invention can be constructed with arranging the yellow soil stick inserting hole 24 of the pair of the film papers 19 and 20 in zigzag and with laying the hot water supplying tubes 40 in the consequentially zigzag format.

At the same time, while the present invention is described with being limited for use examples of the above embodiments according to the present invention (for sleeping and fomentation), but the present invention is not defined for the above use examples thereof and can be used as the fomentation mat of the physical therapy or a cushion with reducing the size of the mat.

In addition, the hot water supplying tubes of the present invention is capable of using a heating device which utilizes the semiconductor device except for technique as stated above and of using an antifreezing solution or an oil with deduction of the water

in the hot water supplying tubes. And also, the hot water supplying tube protecting means can dissolve and assemble the pak 70 with the hot water supplying tubes, not in the example of FIG. 6. In this event, it is convenient that the pak in itself is replaced with the new without supplementing the water with the piston. Of course, the above pak can be used as the format of not the small cymbals but the simple tube and the quality of the pak uses the metal as well as the base metal.

In the course of the junction of the film, the present invention can use not sealing method but adhesion method. If the occasion should arise, the present invention can sew the film. Likewise, it is natural that the format of the section of the yellow soil stick can be changed variously such as a flat format or a square.. Also, the present invention can use for outdoor with using the battery.

As may be apparent from the foregoing, the present invention can enhance the assembly ability because the yellow soil stick is installed at the mat with using two film papers having both sealing surfaces and the mat is made with construction of inserting the yellow soil stick. In comparison with the conventional electrical heating method, with making the mat to be warm by the heat of the hot water, the present invention minimizes the electric wave harm to the human body and obtains not only comfortable sleeping but also the effect good for the human body. Finally, the hot water mat according to the present invention can use in

various places because movement is convenient and easy keeping.

While there have been illustrated and described what are considered to be preferred embodiments of the present invention, it will be understood by those skilled in the art that various changes and modifications may be made, and equivalents may be substituted for elements thereof without departing from the true scope of the present invention. In addition, many modifications may be made to adapt a particular situation to the teaching of the present invention without departing from the central scope thereof. Therefore, it is intended that the present invention not be limited to the particular embodiments disclosed as the best mode contemplated for carrying out the present invention, but that the present invention includes all embodiments falling within the scope of the appended claims.

WHAT IS CLAIMED IS:

1. A hot water mat using a yellow soil, comprising:

outer covers;

tens of horizontal and vertical sealing junction lines which are sealing with heat adhesion in the interior of said outer covers;

a pair of film papers which have hot water supplying tube inserting hole of a given width, disclose one side of said horizontal sealing junction line, and have a plurality of yellow soil stick inserting holes;

a yellow soil stick having the form of a closed tube with being fulled with dried yellow soil power with a given size, which is inserted into each of yellow soil stick inserting holes of said film paper;

hot water supplying tubes which are inserted into each of said hot water stick inserting holes of said film papers and are consequentially installed in the format of U in order to apply the heat to said yellow soil stick;

a hot water supplying means for supplying the hot water to said hot water supplying tubes;

a temperature adjusting means for adjusting the temperature of the hot water in said hot water supplying tubes;

a hot water supplying tube protecting means for protecting said hot water supplying tubes while expanding and contracting in accordance with temperature variation of the hot

water in said hot water supplying tubes; and,

a heat shield plate installed for disclosing the downward conveyance of the heat generated from said hot water supplying tubes with being positioned between said lower film paper and said lower outer cover.

2. The hot water mat as defined in claim 1, wherein said yellow soil sticks inserted into said yellow soil stick inserting holes are constructed with being connected each other in a plurality of bundles,

3. The hot water mat as defined in claim 1, further comprising:

a slider zipper to form a fomentation room with folding said outer covers in 2.

4. The hot water mat as defined in claim 1, wherein said yellow soil stick inserting holes of said film papers are arranged in zigzag and said hot water supplying tubes are consequentially arranged in zigzag.

5. The hot water mat as defined in claim 1, wherein said hot water supplying means is comprised of:

a circulation motor;

a hot water pump which is serially connected to output of said circulation motor and is connected to outlet of said

hot water supplying tubes;

a heat tube which has one opening connected to a hot water discharging open of said hot water pump and other opening connected to an opening of said hot water supplying tubes;

a heat line positioned around circumference of said heat tube, for heating to the given temperature the hot water passed through the interior of said heat tube; and

a heat shield plate for enclosing the circumference of said heat tube with said heat line and closing the heat generated from said heat line, to the outdoor.

6. The hot water mat as defined in claim 1, wherein said hot water supplying protecting means is comprised of:

a pak which has a buffer room connected through a connection horse at one end of said hot water supplying tubes and is made out of extensible vinyl or rubber.

7. The hot water mat as defined in claim 6, further comprising:

a rubber stopper for inserting a piston to supplement the hot water to said pak for hot water supplement in the interior of said hot water supplying tubes.

Fig 1

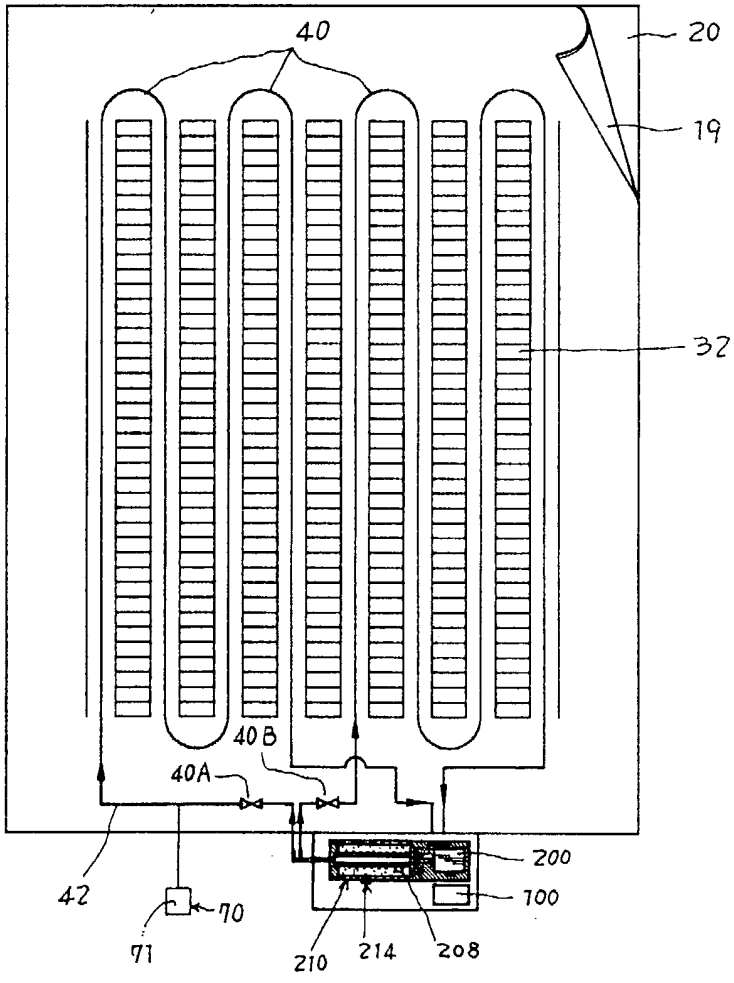


Fig 2

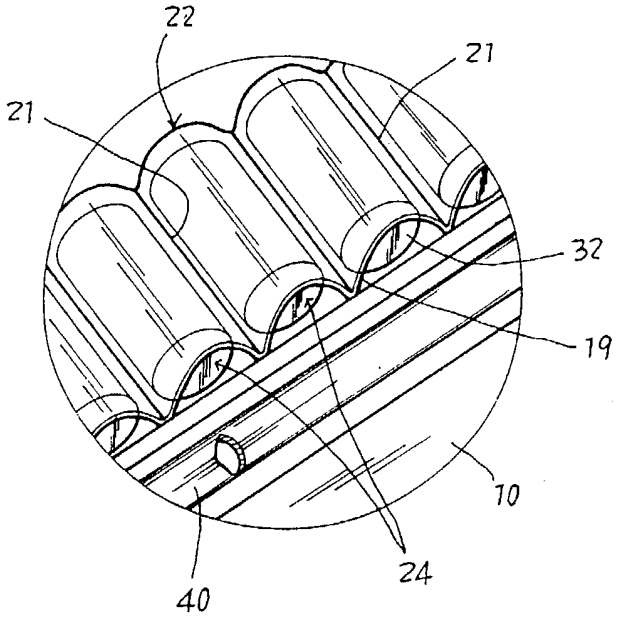


Fig 3

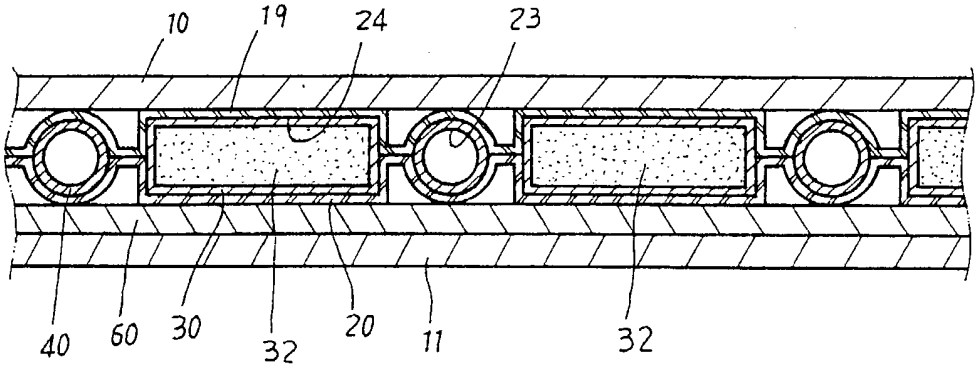


Fig 4

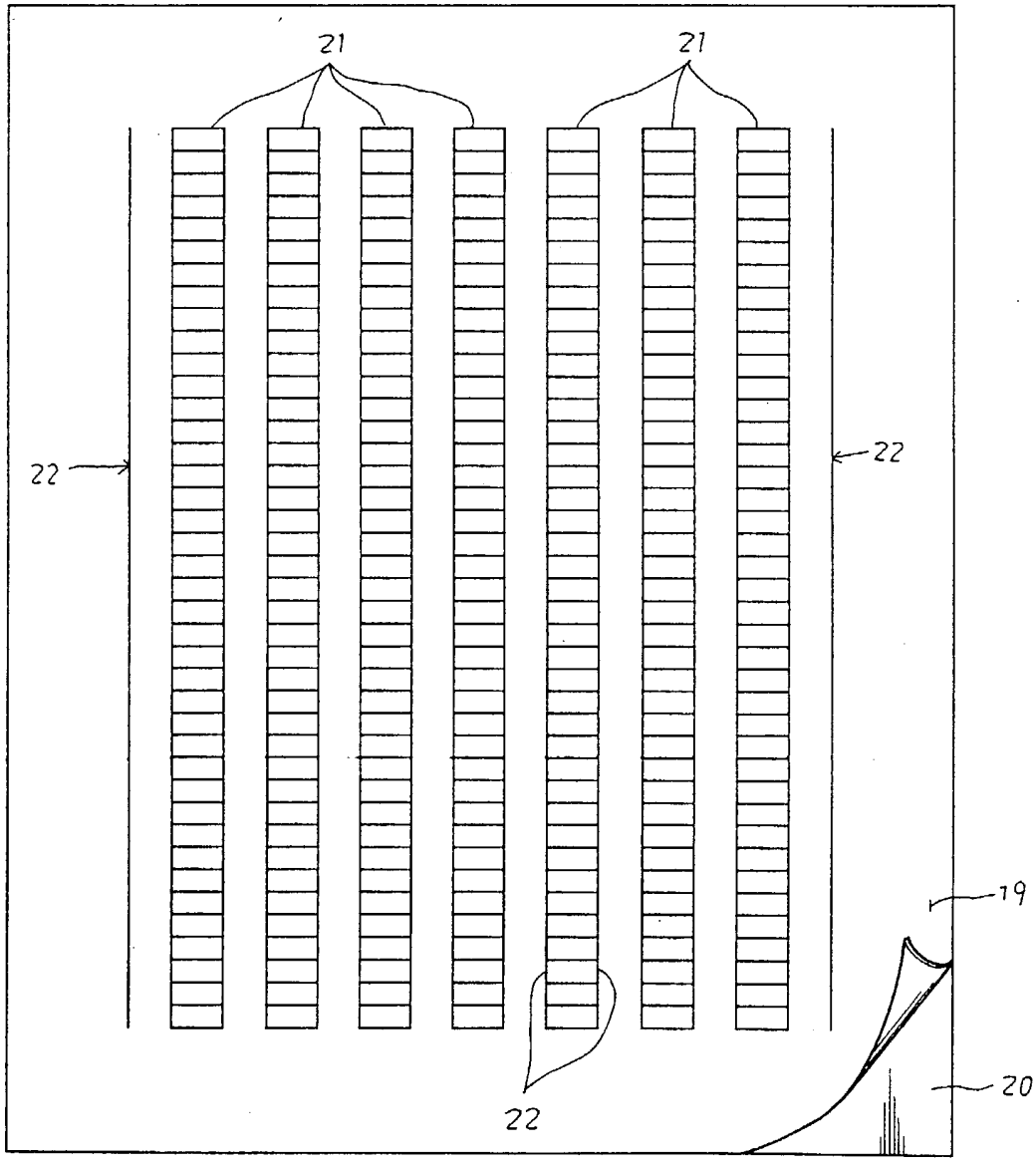


Fig 5

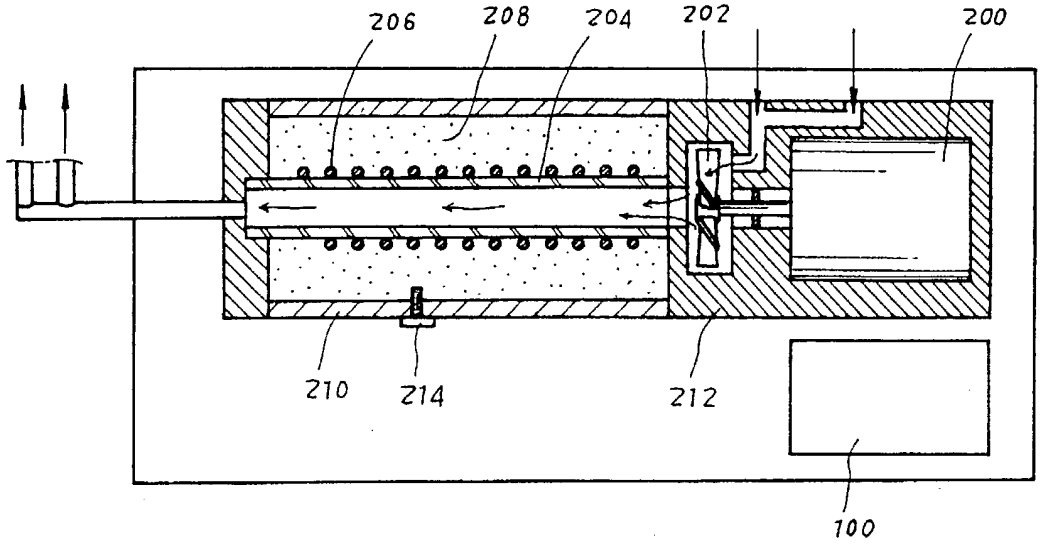


Fig 6

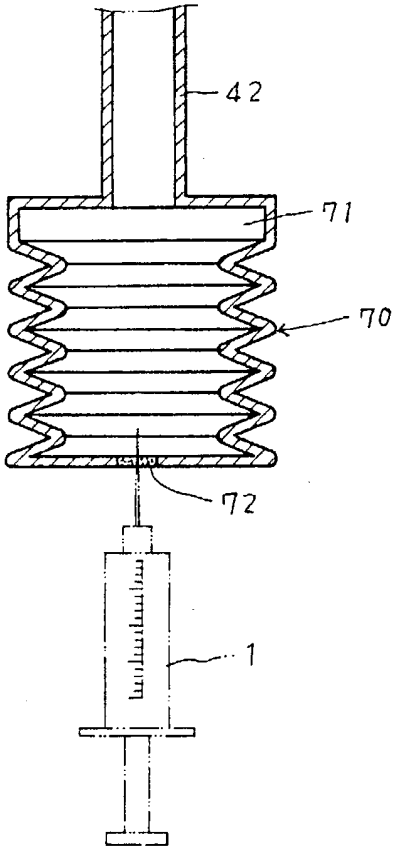


Fig 7

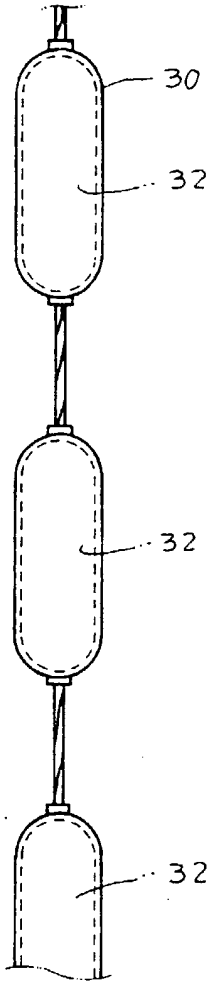


Fig 8

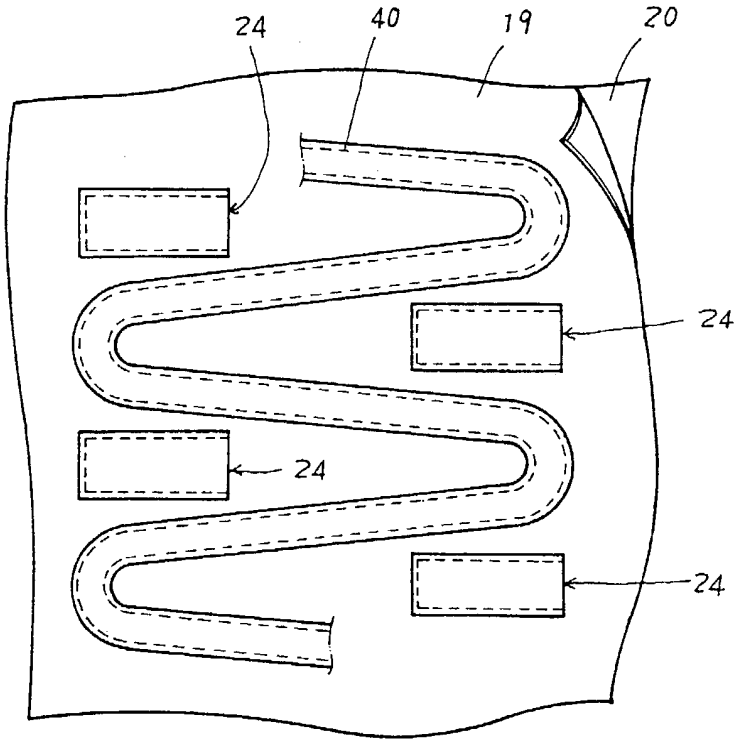


Fig 9